Claims

[c1]   A computer system for documenting, performing, and attesting to

internal controls of a public or private entity or enterprise

comprising: a processing server unit, a plurality of client

workstation units, a communications network, and a computer-

readable storage medium encoded with a computer program

product which modifies the operation of said computer system by

first scheduling by means of a scheduler the processing of a

selected list of business control definitions, second notifying

selected performers in a unit structure of their required activity

within a time period by means of an email system, third routing

the necessary process template and process template data

comprising information, instructions, buttons, applications, fields,

and references deemed useful for the defined activity by means

of a routing engine, fourth, recording the performer's submittal of

the business control activity by operating on the process

template and process template data by means of a database,

and fifth, preparing the supporting materials for officers of the

corporation to assert and external auditors to attest that

adequate financial controls meet regulatory requirements

wherein, scheduling the processing of a selected list of business

control definitions is done by a scheduler directing the operation

of the computer system as follows: comparing the current

scheduler day and time of day against the last successful run to

determine if it is necessary to schedule processes, selecting one of a plurality of process types from a group consisting of controls, evaluations, and tests, selecting one of a plurality of frequencies from the group consisting of hourly, daily, weekly, monthly, quarterly, and annually, matching definitions against the selected process type and frequency, computing the start offset for each definition and comparing to the current scheduler date, comparing the last successful run date for each definition against the current scheduler date, identifying the business unit linked to each selected definition, reading the default user assignment for each business unit, checking if the definition overrides this specific assignment, and routing the process to the assigned user, proceeding in turn to the next unit identified in the definition until all are processed, proceeding in turn to the next definition until all are processed, proceeding in turn to the next frequency until all are processed, proceeding in turn to the next type until all are processed, and setting the scheduler date to the last successful run date plus one increment and reiterating until the current scheduler date exceeds the computer system current date.

[c2]   The computer software program product of claim 1 wherein a definitional hierarchy structure is coupled to a plurality of context structures and to a plurality of context data category lists, and is coupled to said scheduler by means of process template data,

which scheduler is further coupled to a routing engine by means of process template data, which routing engine dynamically synthesizes, transmits, and reads micro application containers presented to and submitted by a plurality of users as uniquely directed by the process template data of each definition.

[c3]   The context data category of claim 2 comprising further lists of context data categories or lists of context data structures wherein said context data category associates disparate context items that may or may not be related by context type or by their location in a hierarchy but which may be efficiently linked to either the definitional or unit hierarchies by a single assignment from any level of the respective hierarchies to the context data category comprising the appropriate references, units, values, standard errors, assertions and any member of the set of context data.

[c4]   The definitional hierarchy structure of claim 2 comprising a control hierarchy structure including a plurality of major areas each of which may have encoded upon the computer readable medium a reference to a plurality of accounting processes each of which may have encoded upon the computer readable medium a reference to account sub-processes each of which may have encoded upon the computer readable medium a reference to control objectives each of which may have encoded upon the computer readable medium a reference to risks each of

which may have encoded upon the computer readable medium a reference to a plurality of control execution definitions each of which may have encoded upon the computer readable medium a reference to a control evaluation definition and to a plurality of control test definitions.

[c5]   The definitions of claim 4 comprised of a plurality of process templates selected from a group consisting of an executable control, its tests, and its evaluation, each containing a frequency of application comprising common financial periods of interest, offsets against said period for when the control activity should start and be due, and such data elements as may be specified in the definition to be combined with a common process template or application container upon a targeted user's computer system modifying the operation of that system to display certain visual elements and to configure certain programmatic elements of the process template.

[c6]   The process template of claim 5, further coupled to a compliance rules user selection screen via a plurality of visual elements to select programmatic elements into the process template thereby modifying the mathematical calculations or comparisons of a plurality of data elements.

[c7]   The context structure of claim 2 comprising the unit hierarchy of users responsible for performing activities selected from the group consisting of creating, performing, evaluating, and testing

the controls, said responsibility being assigned individually or by means of the control hierarchy wherein a level of the control hierarchy may be assigned to an individual in the unit hierarchy who shall be the default performer of every control below that level of control or said assignment overridden by further assignment by category or by specific assignment to an element lower in that control hierarchy and further specifying a person in the unit whom the scheduler will contact in the event of a failure or delay of an assigned individual in performing a control in a timely manner.

[c8]   The micro application container of claim 2 comprising a unique configuration of visual and programmatic elements driven by the data referenced in a definition, creating for each user and for each control, each evaluation, and each test, a temporary, locally-saved interactive client which offloads the server from processing other than delivery of the process template to the client, the delivery of the process template data which arranges an endless combination of visual and programmatic elements and, subsequently, recordation of the submitted results.

[c9]   The routing engine of claim 2 comprised of a mechanism to look up the target unit and associated users coupled to a mechanism for authentication using a directory service thereby obtaining an email address coupled to a mechanism to record or update a transaction in a database coupled to a mechanism for sending

notification to the target with a url link to the transaction in the database coupled to a mechanism to respond to a user click on the url by transmitting process template and process template data specified within an element of the definitional hierarchy electronically to the user's client where the process template data uniquely configures the process template for display, interaction and acknowledging subsequent submittal and recording submitted data.

[c10]   The scheduler of claim 1 further comprising a mechanism of operating against financial periods rather than dates so that in any given year, the controls may be scheduled automatically around holidays and weekends, and further comprising a mechanism of offsetting the launch of processes by a start offset and measuring performance against a due offset specified in days relative to the financial period to provide the user notification, reminders, and if needed initiate an escalation process, and further comprising a mechanism to catch-up both for completely missed days as well as partially missed days where partial completion of the scheduler's task was accomplished prior to an outage, and further comprising a mechanism for checking for active transactions which require multiple steps and the established timelimit for each step in order to measure unacceptably slow progress and automatically move the assignment to an alternate performer.

[c11]   A method for documenting, performing, and attesting to internal

controls of a public or private entity or enterprise comprising the

steps of first scheduling the processing of a selected list of

business control definitions, second notifying selected performers

in a unit structure of their required activity within a time period,

third routing the necessary process template and process

template data comprising information, instructions, buttons,

applications, fields, and references deemed useful for the defined

activity, fourth, recording the performer's submittal of the

business control activity by operating on the process template

and process template data, and fifth, preparing the supporting

materials for officers of the corporation to assert and external

auditors to attest that adequate financial controls meet regulatory

requirements wherein, scheduling the processing of a selected

list of business control definitions comprises the following steps:

comparing the current scheduler day and time of day against the

last successful run to determine if it is necessary to schedule

processes, selecting one of a plurality of process types from a

group consisting of controls, evaluations, and tests, selecting one

of a plurality of frequencies from a group consisting of hourly,

daily, weekly, monthly, quarterly, and annually, matching

definitions against the selected process type and frequency,

computing the start offset for each definition and comparing to

the current scheduler date, comparing the last successful run

date for each definition against the current scheduler date,

identifying the business unit linked to each selected definition,

reading the default user assignment for each business unit,

checking if the definition overrides this specific assignment, and

routing the process to the assigned user, proceeding in turn to

the next unit identified in the definition until all are processed,

proceeding in turn to the next definition until all are processed,

proceeding in turn to the next frequency until all are processed,

proceeding in turn to the next type until all are processed, and

setting the scheduler date to the last successful run date plus

one increment and reiterating until the current scheduler date

exceeds the computer system current date.

[c12]   The method of automating an internal control system comprising

firstly creating a definitional hierarchy structure, secondly

creating a plurality of context structures, thirdly creating a

plurality of context data category lists, fourthly scheduling

according to process template data, fifthly routing process

template data and process templates to dynamically synthesize,

transmit, and read micro application containers presented to and

submitted by a plurality of users as uniquely directed by the

process template data of each definition.

[c13]   The method of defining and populating a context data category of

claim 12 comprising the steps of creating lists of previously

created context data categories or lists of context data structures

wherein said context data category associates disparate context

items that may or may not be related by context type or by their location in a hierarchy but which may be efficiently linked to either the definitional or unit hierarchies by a single assignment from any level of the respective hierarchies to the context data category comprising the appropriate references, units, values, standard errors, assertions and any member of the set of context data.

[c14]   The method of configuring a definitional hierarchy structure of claim 12 comprising the steps of selecting and then naming a plurality of major areas and for each major area selecting and naming a plurality of accounting processes and for each accounting process selecting and naming a plurality of accounting sub-processes and for each accounting sub-process, selecting and naming a plurality of control objectives and for each control objective selecting and naming a plurality of risks and for each risk, naming and specifying a plurality of control execution definitions and for each control execution definition, naming and specifying a plurality of control evaluation definitions and control test definitions.

[c15]   The method of creating the definitions of claim 14 comprised of the steps of selecting a frequency of application from a list of common financial periods of interest, selecting an offset against said period for when the control activity should start and be due, adding a name and description, selecting visual elements and

captions, specifying data types for input field and data elements for display thereby creating a process template and specifying the process template data that will configure the process template or application container upon a targeted user's computer system modifying the operation of that system to display certain visual elements and to configure certain programmatic elements of the process template.

[c16]   The method of building a process template of claim 15 further comprising the steps of accessing a compliance rules user selection screen, secondly, clicking a plurality of visual elements to select programmatic elements into the process template and thirdly modifying the mathematical calculations or comparisons of a plurality of data elements by incorporating the selected programmatic modules into the template.

[c17]   The method of creating a context structure of claim 12 comprising the steps of first, creating a unit hierarchy by specifying users responsible for creating, performing, evaluating, testing the controls within sub-units, and by specifying a plurality of sub-units within units in a hierarchical fashion and secondly adding other information relevant to the operation and analysis of a plurality of controls, their evaluation, and tests.

[c18]   The method of using a process template to synthesize the display of a micro application container of claim 12 comprising the steps of reading a definition and upon request of the user,

retrieving a unique configuration of visual and programmatic

elements driven by the data referenced in a definition, and

transmitting the visual and programmatic elements to the client

workstation, creating for each user and for each control, each

evaluation, and each test, a temporary, locally-saved interactive

client which offloads the server from processing other than

delivery of the process template to the client, the delivery of the

process template data which arranges an endless combination of

visual and programmatic elements and, subsequently,

recordation of the submitted results.

[c19]   The method of routing of claim 12 comprised of the following

steps firstly looking up the target unit and associated users,

secondly authenticating the user using a directory service

thereby obtaining an email address, thirdly, recording or updating

a transaction in a database, fourthly, sending notification to the

target with a url link to the transaction in the database, fifthly

responding to a user click on the url by transmitting process

template and process template data specified within an element

of the definitional hierarchy electronically to the user's client,

sixthly uniquely configuring the process template for display,

interaction and seventhly, acknowledging subsequent submittal

and recording submitted data.

[c20]   The method of scheduling of claim 11 further comprising firstly

operating against financial periods rather than dates so that in

any given year, the controls may be scheduled automatically around holidays and weekends, and secondly computing the date of launch of processes by a start offset and measuring performance against a due offset specified in days relative to the financial period to provide the user notification, reminders, and if needed initiate an escalation process, and thirdly initiating additional processes to catch-up both for completely missed days as well as partially missed days where partial completion of the scheduler's task was accomplished prior to an outage, and fourthly checking for active transactions which require multiple steps and the established timelimit for each step in order to measure unacceptably slow progress and fifthly automatically moving the assignment to an alternate performer.

[c21]   An internal control system for documenting, performing, and attesting to internal controls of a public or private entity or enterprise comprising a scheduling system which selects from a list of business control definitions, a routing system which notifies selected performers in a unit structure of their required activity within a time period, and transmits the necessary process template and process template data comprising information, instructions, buttons, applications, fields, and references deemed useful for the defined activity, a transaction system which monitors the performer's submittal of the business control activity by operating on the process template and process template data,

and a reporting system to prepare the supporting materials for officers of the corporation to assert and external auditors to attest that adequate financial controls meet regulatory requirements wherein, said scheduling system directs the operation of the computer system as follows: comparing the current scheduler day and time of day against the last successful run to determine if it is necessary to schedule processes, selecting one of a plurality of process types selected from a group consisting of controls, evaluations, and tests, selecting one of a plurality of frequencies from a group consisting of hourly, daily, weekly, monthly, quarterly, and annually, matching definitions against the selected process type and frequency, computing the start offset for each definition and comparing to the current scheduler date, comparing the last successful run date for each definition against the current scheduler date, identifying the business unit linked to each selected definition, reading the default user assignment for each business unit, checking if the definition overrides this specific assignment, and routing the process to the assigned user, proceeding in turn to the next unit identified in the definition until all are processed, proceeding in turn to the next definition until all are processed, proceeding in turn to the next frequency until all are processed, proceeding in turn to the next type until all are processed, and setting the scheduler date to the last successful run date plus one increment and reiterating until the current scheduler date exceeds the computer system current

date.

[c22]   The internal control system of claim 21 wherein a definitional

hierarchy database, is linked to a plurality of context databases

and to a plurality of context data category lists, and

communicates with said scheduling system by means of process

template data, which further provides a routing system with

process template data to dynamically synthesize, transmit, and

read micro application containers presented to and submitted by

a plurality of users as uniquely directed by the process template

data of each definition.

[c23]   The context data category of claim 22 containing elements

selected from the group consisting of further lists of context data

categories, lists of context data structures, references, units,

values, standard errors, and assertions.

[c24]   The definitional hierarchy structure of claim 22 comprising

elements selected from a group consisting of major areas,

accounting processes, accounting sub-processes, control

objectives, risks, control execution definitions, control evaluation

definitions and control test definitions.

[c25]   The definitions of claim 24 consisting of process templates

selected from the group consisting of executable controls, tests,

and evaluations containing a frequency of application comprising

common financial periods of interest, offsets against said period

for when the control activity should start and be due, visual elements, data, and programmatic elements.

[c26]   The process template of claim 25, further coupled to a compliance rules user selection screen via a plurality of visual elements to select programmatic elements into the process template thereby modifying the mathematical calculations or comparisons of a plurality of data elements.

[c27]   The context structure of claim 22 selected from the group consisting of the unit hierarchy of users responsible for creating, performing, evaluating, or testing the controls, and a person in the unit whom the scheduler will contact in the event of a failure or delay of an assigned individual to perform a control in a timely manner.

[c28]   The micro application container of claim 22 comprising means for configuring visual and programmatic elements driven by the data referenced in a definition, means for creating for each user and for each control, evaluation, or test, a temporary or locally saved interactive client which offloads the server from processing other than delivery of the process template to the client, means for delivering the process template data which arranges an endless combination of visual and programmatic elements and, means for recording of the submitted results.

[c29]   The routing system of claim 22 comprised of means for looking

up the target unit and associated users coupled to means for authentication using a directory service thereby obtaining an email address coupled to means for to record or update a transaction in a database coupled to a mechanism for sending notification to the target with a url link to the transaction in the database coupled to a mechanism to respond to a user click on the url by transmitting process template and process template data specified within an element of the definitional hierarchy electronically to the user's client where the process template data uniquely configures the process template for display, interaction and acknowledging subsequent submittal and recording submitted data.

[c30]   The scheduling system of claim 21 further comprising means for operating against financial periods rather than dates so that in any given year, the controls may be scheduled automatically around holidays and weekends, and means for offsetting the launch of processes by a start offset and measuring performance against a due offset specified in days relative to the financial period to provide the user notification, reminders, and if needed initiate an escalation process, and means for catching-up both for completely missed days as well as partially missed days where partial completion of the scheduler's task was accomplished prior to an outage, and means for checking for active transactions which require multiple steps and the established timelimit for

each step in order to measure slow or no progress and

automatically moving the assignment to an alternate performer.